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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,325	08/27/2001	Anthony Kim	PALM-3672	5086

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EXAMINER
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SHAPIRO, LEONID

ART UNIT	PAPER NUMBER
2673	11

DATE MAILED: 07/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/940,325

Applicant(s)

KIM ET AL.

Examiner

Leonid Shapiro

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 17-30 is/are rejected.
- 7) ☒ Claim(s) 13-16 and 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-2, 7-8, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilian (US Patent No. 5,274,217) in view of Yue (US Patent No. 6,748,116 B1).

As to claim 1, Kilian teaches a miniature keyboard (See Col. 1, Lines 13-18) comprising:

a plurality of equally spaced keys (See Fig. 1, items 1-4, 12, Col. 2, Lines 30-33) on a single keypad (See Figs. 1-3) for inputting data to electronic device (See Fig. 1, items 1-4, Col. 1, Lines 19-37);

wherein keys of plurality of equally spaced keys are individually sized such that multiple ones can be depressed by a single finger tip depression (See Fig. 1, item 1, Col. 1, Lines 43-49) and wherein adjacent keys differ in height (See Fig. 2, item 1-4, 11, 15, Col. 2, Lines 44-50 and Lines 55-58);

and wherein keys comprise at least one set of keys that are raised for providing key differentiation and to facilitate single key selection (See Fig. 2, items 1-4, 11, 15, from Col. 1, Line 68 to Col. 2, Line 11).

Kilian does not show a portable electronic device.

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Yue teaches a portable electronic device with keypad (See Fig. 2B, item 282, from 6, Line 64 to Col. 7, Line 19).

It would have been obvious at the time of the invention to use a portable electronic device as shown by Yue for Kilian mini keyboard application.

As to claims 2, 8, Kilian teaches a first row of keys (See Figs. 1-2, item 2) and second row of keys (See Figs. 1-2, item 3) and wherein the surface of first row of keys is raised above the surface of second row of keys (see fig. 2, item 15, Col. 2, Lines 55-58).

As to claims 7, 12 Yue teaches a portable electronic device is a personal digital assistant (See Fig. 2B, item 282, from 6, Line 64 to Col. 7, Line 19).

2. Claims 19-20, 25-26, 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yue in view of Kilian.

As to claim 19, Yue teaches a portable computer system (See Fig. 2B, item 120, from Col. 6, Line 64 to Col. 7, Line 1) comprising:

a processor coupled to a bus (See Fig. 2, items 252, 254, from Col. 6, Line 64 to Col. 7, Line 20);

memory coupled to bus (See Fig. 2, items 252, 256, from Col. 6, Line 64 to Col. 7, Line 20);

a miniature keyboard (keypad) coupled to bus (See Fig. 2, items 252, 282, from Col. 6, Line 64 to Col. 7, Line 20).

Yue does not show

a plurality of equally spaced keys on a single keypad for inputting data;

wherein keys are individually sized such that multiple ones can be depressed by a single finger tip depression and wherein adjacent keys differ in height; and

wherein keys of plurality of equally spaced keys comprise at least one set of keys that are raised for providing key differentiation and to facilitate single key selection.

Kilian teaches

a plurality of equally spaced keys (See Fig. 1, items 1-4, 12, Col. 2, Lines 30-33) on a single keypad (See Figs. 1-3) for inputting data to electronic device (See Fig. 1, items 1-4, Col. 1, Lines 19-37);

wherein keys of plurality are individually sized such that multiple ones can be depressed by a single finger tip depression (See Fig. 1, item 1, Col. 1, Lines 43-49) and wherein adjacent keys differ in height (See Fig. 2, item 1-4, 11, 15, Col. 2, Lines 44-50 and Lines 55-58);

and wherein keys of plurality of equally spaced keys comprise at least one set of keys that are raised for providing key differentiation and to facilitate single key selection (See Fig. 2, items 1-4, 11, 15, from Col. 1, Line 68 to Col. 2, Line 11).

It would have been obvious at the time of the invention to implement mini keyboard as shown by Kilian in Yue apparatus in order for operator's finger reliably depress selected key (See Col. 1, Lines 43-49 in the Kilian reference).

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As to claim 28, Yue teaches a portable electronic device (See Fig. 2B, item 120, from Col. 6, Line 64 to Col. 7, Line 1) comprising:

a processor coupled to a bus (See Fig. 2, items 252, 254, from Col. 6, Line 64 to Col. 7, Line 20);

memory coupled to bus (See Fig. 2, items 252, 256, from Col. 6, Line 64 to Col. 7, Line 20);

a display screen coupled to bus (See Fig. 2, items 252, 274, 276, from Col. 6, Line 64 to Col. 7, Line 20).

Yue does not show input mechanism comprising a plurality of equally spaced keys on a single keypad that are individually sized, such that each individual key surface is substantially smaller than a surface of a single finger depression and wherein plurality of keys comprise a set of keys having surfaces raised relative to the other keys of plurality of keys to facilitate key navigation and key selection and wherein adjacent keys differ in height.

Kilian teaches a plurality of equally spaced keys (See Fig. 1, items 1-4, 12, Col. 2, Lines 30-33) on a single keypad (See Figs. 1-3) such that each individual key surface is substantially smaller than a surface of a single finger depression (See Fig. 1, item 1, Col. 1, Lines 43-49) and wherein plurality of keys comprise a set of keys having surfaces raised relative to the other keys of plurality of keys (See Fig. 2, item 1-4, 11, 15, Col. 2, Lines 44-50 and Lines 55-58) to facilitate key navigation and key selection and wherein adjacent keys differ in height (See Fig. 2, items 1-4, 11, 15, from Col. 1, Line 68 to Col. 2, Line 11).

It would have been obvious at the time of the invention to implement mini keyboard as shown by Kilian in Yue apparatus in order for operator's finger reliably depress selected key (See Col. 1, Lines 43-49 in the Kilian reference).

As to claims 20, 26, 29, Kilian teaches a first row w of keys (See Figs. 1-2, item 2) and second row of keys (See Figs. 1-2, item 3) and wherein the surface of first row of keys is raised above the surface of second row of keys (see fig. 2, item 15, Col. 2, Lines 55-58).

As to claim 25, Yue teaches a portable electronic device is a personal digital assistant (See Fig. 2B, item 282, from 6, Line 64 to Col. 7, Line 19).

As to claim 14, Chacon et al. teaches a plurality of keys is different shape (See Figs. 1, 4, items 54,56,50,57-58, in description See Col.1, Lines 56-60).

3. Claims 5, 10, 18, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilian and Yue as applied to claims 1, 2, 8, 20 above, and further in view of Chacon et al. (US Patent No. 5,831,819).

As to claims 5, 10, 23 Kilian and Yue do not show a plurality of keys is different shape.

Chacon et al. teaches a plurality of keys is different shape (See Figs. 1, 4, items 54,56,50,57-58, in description See Col.1, Lines 56-60).

It would have been obvious at the time of the invention to implement a plurality of keys is different shape as shown by Chacon et al. in Kilian and Yue apparatus in order to be easily distinguish computer keys (See Abstract in the Chacon et al. reference).

As to claim 18, Kilian and Yue do not show a plurality of keys requires different amount of pressures to depress (See Col. 1, Lines 56-60).

Chacon et al. teaches a plurality of keys requires different amount of pressures to depress (See Col. 1, Lines 56-60).

It would have been obvious at the time of the invention that a plurality of keys requires different amount of pressures to depress as shown by Chacon et al. in Kilian and Yue apparatus in order to be easily distinguish computer keys (See Abstract in the Chacon et al. reference).

4. Claims 3-4, 9, 21-22, 27, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilian and Yue as aforementioned in claims 2,8,20,26,29 in view of Kiernan (PUB. No.:US 2002/0110238v A1).

Kilian and Yue do not show rows or columns decrease or increase in height from a top of miniature keyboard to a bottom of miniature keyboard.

Kiernan teaches the keypad with tapers to a lower height towards the outer edge of the keypad (See Fig. 3, items 17-19,43,44, in description See Page 3, paragraph 0028).

It would have been obvious at the time of the invention to implement the heights of the rows as shown by Kiernan in Kilian and Yue apparatus to decrease or increase height of rows or columns from a top to a bottom of miniature keyboard in order to tactically indicate the relative location of each key (See Page 1, paragraph 0001 in Kiernan reference).



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5. Claims 6, 11, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilian and Yue as aforementioned in claims 2,8,13,20 in view of Miller (US Patent No. 5,660448).

Kilian and Yue do not show a plurality of keys is arranged in substantially a QWERTY keyboard fashion.

Miller teaches a standard QWERTY keyboard (See Col. 1, Lines 9-11). It would have been obvious at the time of the invention to implement standard QWERTY keyboard as shown by Miller in Kilian and Yue apparatus in order to allow to maintain of the typing speed and accuracy associated with conventional keyboard (See Abstract in the Miller reference).

6. Claim 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilian and Yue as aforementioned in claim 1 in view of Louis (US Patent No. 5,212,473).

Kilian and Yue do not teach a plurality of keys makes tone when pressed.

Louis teaches the user hear an audible sound indicating the selected key has been successfully activated (See Fig.1, item 55, in description See Col. 3, Lines 58-64).

It would have been obvious at the time of the invention to implement the tone response as shown by Miller in Kilian and Yue apparatus in order to facilitate the entry of information in a fast and accurate manner (See Col. 1, Lines 15-18 in the Louis reference).

***Response to Amendment***

7. Applicant's arguments filed on 04-19-04 with respect to claims 1-31 have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

8. Claims 13-16, 31 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is an examiner's statement of reasons for allowance:

Relative to claim 13, the major difference between the teaching of the prior art of record (US Patent No 5,274,217, Kilian) and US Patent No. 6,748,116 B1, Yue) and the instant invention is that the said prior art **does not teach** raised set of keys comprise a substantially checkered pattern on miniature keyboard.

Relative to claim 31, the major difference between the teaching of the prior art of record (US Patent No 5,274,217, Kilian) and US Patent No. 6,748,116 B1, Yue) and the instant invention is that the said prior art **does not teach** plurality of keys comprise alternating key diagonals of different heights with respect to adjacent key diagonals.

Claims 14-16 depend on claim 13.

***Telephone inquire***

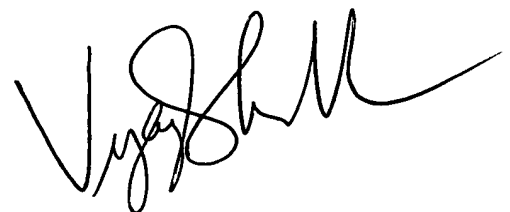
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ls

06-28-04



**VIJAY SHANKAR**  
**PRIMARY EXAMINER**